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ART UNIT	**PAPER NUMBER**
2666	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,514	RASHID ET AL.	
	Examiner	Art Unit	
	Puneet Bhandari	2666	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

1. The disclosure is objected to because of the following informalities: missing serial number for US Patent Application, entitled Multi-Processor System disclosed on page 6, paragraph 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim **1-3, 5 & 6** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hartmann et al.

Regarding claim **1**, an apparatus is anticipated by *"communication subsystem"* disclosed in Fig. 5 or column 7, lines 55-57 comprising:

A set of inputs ports to receive data packets is anticipated by "*communication ports for receiving data packet*" disclosed in column 7, line 67 or *"port adapter"* disclosed in Fig 5;

A set of sink ports coupled to said set of input ports to receive and forward said data packets is anticipated by "*communication port for transmitting data*" disclosed in column 8 lines 20-21; and

A set of data rings coupling said set of input ports and said set of sink ports is anticipated by *"circular data bus/ring 512"* disclosed in Fig.5.

Regarding claim **2**, wherein said set of data rings couples each sink ports to each input port in said set of input ports is anticipated by *"port adapters are connected to the ring"* disclosed in column 8, lines 6-8.

Regarding claim **3**, wherein said set of data rings is a single ring is anticipated by *"ring topology"* disclosed in column 7, lines 60-64 or Fig.5.

Regarding claim **5**, wherein each sink port in said set of sink ports snoop data packets on each data ring in said set of data rings is anticipated by "*port adapter exchange the data packets" disclosed in column 8, lines 15-17.*

Regarding claim **6**,wherein a first sink port in said set of sink ports snoops the data packet on each data ring is anticipated by *"port adapter exchange the data packets" disclosed in column 8, lines 15-17;* in said set of data rings to determine whether said data packets are destined for said first sink port is anticipated by "*parsing logic"* disclosed in column 16, lines 4-10.

4. Claim **1-3,5-14 & 25-38** are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Dai et al (US 6,658016).

Regarding claim **1**, an apparatus is anticipated by *"packet switching fabric"* disclosed column 6, lines 55-57 comprising:

A set of inputs ports to receive data packets is anticipated by *"input ports"* disclosed in column 8,line 37; and

A set of sink ports coupled to said set of input ports to receive and forward said data packets is anticipated by "*output ports*" disclosed in column 8 lines 38-39; and

A set of data rings coupling said set of input ports and said set of sink ports anticipated by "*data ring segment-19*" disclosed in column 6, lines 34-42.

Regarding claim **2**, wherein said set of data rings couples each sink ports to each input port in said set of input ports is anticipated by *"destination and source are coupled via the data ring"* disclosed in column 7, lines 35-39.

Regarding claim **3**, wherein said set of data rings is a single ring is anticipated by *"data ring"* disclosed in column 7, lines24-26.

Regarding claim **5**, wherein each sink port in said set of sink ports snoop data packets on each data ring in said set of data rings is anticipated by "*packet routing and control unit-302reads each of the data packet" disclosed in column 14, lines 12-14.*

Regarding claim **6**,wherein a first sink port in said set of sink ports snoops the data packet on each data ring in said set of data rings to determine whether said data packets are destined for said first sink port is anticipated by *"determination of destination ID to determine destination associated with received data packet"* disclosed in column 14, lines 13-20.

Regarding claim **7**, wherein said first sink snoops each of the data packet to determine whether each of said data packet contains a destination address supported by said first sink is anticipated by "*destination address included in the header*

information of each packet is used to determine destination" as disclosed in column 14, lines 15-20.

Regarding claim **8**, wherein first set of input ports in said set of input ports is coupled to a first data ring in said set of data ring is anticipated by "*data ring port 16 for receiving data"* disclosed in column 6, line 36; a second set of input ports in said set of input ports is coupled to a second data ring in said set of data rings is anticipated by *"control ring input port 22 for receiving control messages"* as disclosed in column 6, line 42.

Regarding claim **9**, wherein a first set of sink port in said set of sink ports snoops data packets on each data ring in said set of data rings is anticipated by "*packet routing and control unit-302 reads each of the data packet"* disclosed in column 14, lines 12-14; and determines whether to accept a data packet based on a set of criteria is anticipated by is anticipated by "*source managing unit-90 determine weather to accept or discard the packet"* disclosed in column 09-lines 31-45.

Regarding claim **10**,wherein said set of criteria is anticipated by "*storage space available*" disclosed in column 8, line 5; includes said sink port having sufficient storage space for storing data packet is anticipated "*buffer queue for storing the data packets 86*" disclosed in column 8, line 5.

Regarding claim **11**, wherein said set of criteria includes said set sink port supporting a destination target by said data packet is anticipated by "*network routing table-304*"disclosed in column 27, lines 1-5.

Regarding claim **12**, wherein set criteria is anticipated by "*buffer space*" disclosed in column 10-line 35 includes a total number of packets being received by the said first sink port not exceeding a predetermined number of packets is anticipated by "*threshold amount of available buffer space*" as disclosed in column 10, lines 35-36.

Regarding claim **13**, where in the sink port in said set of sink port is anticipated by "*output ports*" disclosed in column 8 lines 38-39; includes

A ring interface coupled to said set of data rings to receive data from said data packets is anticipated by *"input port 16"* disclosed in Fig-1 or column 16, line 36.

A storage buffer coupled to the said ring interface to receive and store said data is anticipated by *"buffer 80"* disclosed in Fig-2A.

An output port coupled to said storage buffer to receive said data from said storage buffer is anticipated by *"storage buffer 80"* disclosed in Fig-2A; and transmit said data on a communication link is anticipated by *"communication link"* disclosed in column 8, lines 53-55.

Regarding claim **14**, wherein an input port in said set of input port is anticipated by *"input ports"* disclosed in column 8,line 37; and

A communication interface to receive data packets from a communication link is anticipated by *"network port 88"* disclosed in Fig-2

A storage buffer coupled to said communication link to store data from said packets is anticipated by *"storage buffer 80"* disclosed in Fig-2A; said storage buffer coupled to at least one data ring in said data rings is anticipated by *"storage buffer (86) coupled to data ring (18) "* as disclosed in fig-2.

Regarding claim **25**, method for transferring data packets to target is anticipated by "packet transfer operation" disclosed in column 7, lines 30-31; comprising the steps of

(a). Receiving a set of data packets is anticipated by *"data packets are received"* disclosed in column 7, line 32

(b). Transferring said set of data packets to set of data rings is anticipated by *"data ring"* disclosed in column 7, line 39; wherein a set of sink port is coupled to said set of data rings is anticipated by "destination (sink port) is coupled to the data ring" disclosed in column 7, line 35-39;

(c). A sink port in said set of sink ports is anticipated by *"output ports 84"* disclosed in Fig.2A, determining whether to accept data packets in said data packets, based on a set criteria is anticipated by *"determination of destination ID to determine destination associated with received data packet"* disclosed in column 14, lines 13-20.

(d). Said sink port, collecting data for data packets accepted by said sink port is anticipated by *"buffer queue for storing the data packets 80"* disclosed in Fig-2A.

Regarding claim **26**, where in said step (c) and said step (d) are performed by each sink port in said set of sink port is anticipated by *"buffer queue allocated to each queue"* as disclosed in Fig. 2A (step(d)) and *"Packet routing and control unit 302 determine the destination associated with each of the sink port"* disclosed in Fig-3A (step(c)).

Regarding claim **27**, wherein said set (c) includes the step of:

Said sink port determining whether a data packet includes a destination address in a predetermined set of destination addresses is anticipated by "*destination address included in the header information of each packet is used to determine destination*" as disclosed in column 14, lines 15-20.

Regarding claim **28**, wherein said set (c) includes the step of:

Said sink port determining whether to accept said data packet based on additional criteria is anticipated by *"storage space available"* as disclosed in column 8, line 5 in the said criteria.

Regarding claim **29**, wherein said set (c) includes the step of:

Determining whether said sink port is enabled to receive data packet is anticipated by "*source managing unit-determine weather sink port is enabled to receive the data packet"* disclosed in column 09-lines 31-45.

Regarding claim **30,** wherein said step (c) includes the step of:

Determining whether said sink port has sufficient resources to store said data packet is anticipated by *" threshold amount of buffer space available"* as disclosed in column 10, line 35.

Regarding claim **31**, wherein the said step (c) includes step of

Determining whether said sink port is currently receiving a maximum allowable number of packets is anticipated by *"destination managing unit monitors the availability of buffer space in each of the buffer queue"* disclosed in column 10, lines 28-30.

Regarding claim **32**, wherein said step (c) (2) includes step of:

Determining weather said data packet has number of byte within a predetermined range is anticipated by *"the data transfer capacity depends upon the bandwidth of the bus"* as disclosed in column 7, line 20-23.

Regarding claim **33**, method of claim **28**, further including the step of:
Said sink port, issuing a rejection signal if said if said sink port determines not to accept said data packet by said sink port is anticipated by *"terminate the message and report an error"* as disclosed in step 736a of Fig 9A.

Regarding claim **34**, method of claim 33, wherein said rejection signal terminates further reception of said data packet by said sink port is anticipated by *" END"* as disclosed after step 736a in Fig 9A.

Regarding claim **35**, method of claim 25, further including the step of:
Said sink port transmitting data packets collected in step (d) is anticipated by *"data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54.

Regarding claim **36**, an apparatus for transferring data packets to targets is anticipated by *"packet transfer operations"* disclosed in column 7, lines 31-40.

Receiving means for receiving a set of data packets is anticipated by *"data packets are received at a network port"* as disclosed in column 7, lines 35-37.

A set of sink ports is anticipated by *"output ports-84"* as disclosed in Fig-2A; coupled to said of receiving means is anticipated by *"input ports-88"* as disclosed in Fig-2A; to receive said set of data packet from said receiving means is anticipated by *" for receiving data packet "* as disclosed in column 7, line 67;each set of sink ports including:

Determining means for determining whether to accept data packet in said set of data packet, based on a criteria is anticipated by *"source managing unit-90 determine weather to accept or discard the packet"* disclosed in column 09-lines 31-45

Storage means for storing the data packet accepted by the said sink port is anticipated by *"storage buffer 80"* disclosed in Fig-2A;

Data ring means for coupling said receiving means to said set of sink ports is anticipated by *"data ring-19"* disclosed in Fig.1;

Regarding claim **37**, A cross-bar switch is anticipated by *"packet switching fabric"* disclosed in Fig. 1:comprising

A set of input ports to receive data packet from a communication link is anticipated by *"input ports"* disclosed in column 8,line 37; and

A set of sink port coupled to said set of input ports to receive said data packets from said set of input ports is anticipated by "*output ports*" disclosed in column 8 lines 38-39.

Wherein each sink port in said set of sink port includes:

A ring interface coupled to said set of data ring to receive data from said data packets is anticipated by *"input port 16"* disclosed in Fig-1 or column 16, line 36

A storage buffer coupled to said ring interface to receive and store said data is anticipated by *"storage buffer 80"* disclosed in Fig-2A, and

An output port coupled to said storage buffer to receive said data from said storage buffer is anticipated by *"output port 84"* disclosed in Fig-2A and transmit said data on a communication link; and

A set of data rings coupling each sink port in set of sink ports to each input port in said set of input ports is anticipated by *"data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54

Wherein each sink port in said set of sink port snoops data packets on each data ring in said set of data rings is anticipated by "*packet routing and control unit-302reads each of the data packet" disclosed in column 14, lines 12-14.*

Regarding claim **38,** a method for transferring data packets to target is anticipated by *"packet transfer operations"* disclosed in column 7, lines 31-40;said method comprising the steps of

(a) receiving a set of data packets is anticipated by "d*ata packet is received on a network port"* as disclosed in column 7, line 36;

(b) transferring said set of data packet to a set of data rings is anticipated by *"data ring 19 and control ring 45"*disclosed in column 7, lines 39-40, wherein a set of sink ports is coupled to said set of data rings is anticipated by "*destination (sink port) is coupled to the data ring"* disclosed in column 7, line 35-39;

(c) a sink port in said set of sink ports, determining whether to accept data packets in said set of data packets, based on a set criteria is anticipated by "*source managing unit-90 determine weather to accept or discard the packet"* disclosed in column 09-lines 31-45.

wherein said step of (c) includes the steps of:

(1) said sink port, determining whether a data packet includes a destination address in predetermined set of addresses is anticipated by *"source ID include a local device"*, disclosed in block 734a in Fig-9A;and

(2) said sink port, determining whether to accept said data packet based on additional criteria s anticipated by "*buffer space*" disclosed in column 10-line 35 in said set of criteria

(d) said sink port, collecting data packets accepted by said sink port is anticipated by "*storage buffer 80"* disclosed in Fig-2A

(e) said sink port, issuing a rejection signal if the said sink port determines not to accept said data packet in the said step (c)(2) is anticipated by *"terminate the message and report an error"* as disclosed in step 736a of Fig 9A ; and

(f) said sink port transmitting said data packets collected in said step (d) anticipated by "*data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54

wherein said step (c) and said step (d) are performed by each sink port in said set of sink port. is anticipated by *"buffer queue allocated to each queue"* as disclosed in Fig. 2A (step(d)) and *"Packet routing and control unit 302 determine the destination associated with each of the sink port"* disclosed in Fig-3A (step(c)).

5. Claim **15-24** are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Carlson (US 6,728206).

Regarding claim **15**, a cross-bar switch is anticipated by *"cross-bar switch"* disclosed in column 5, line 22; comprising

A set of input ports to receive data packets from a communication link is anticipated by "*input port A (301)*" disclosed in Fig 3 or column 6, line 11; and

A set of sink ports coupled to said set of input ports to receive said data packets from the said set of input ports is anticipated by "*output port A (302)*" disclosed in Fig-3 or column 6, line 13; and

A set of data rings coupling each sink port in said set of sink ports to each input ports in said set of input ports is anticipated by *"data rings 370 and 390"* disclosed in Fig-3 or column 6, lines 20-24.

Regarding claim **16**, wherein sink port in said set of sink ports snoops data packet on each data ring in said set of data rings is anticipated by *"each register is coupled to get message from the response ring"* disclosed in column 8, lines 44-46.

Regarding claim **17**, wherein the first sink port in the said set of sink ports snoops the data packet on each data ring in a said set of data rings to determine whether said data packets are destined for said first sink port is anticipated by *"checks the address field of the message"* disclosed in column 11, lines 5-10

Regarding claim **18,** wherein said first sink port snoops each of said data packets to determine whether said each of said data packets contains destination address supported by said first sink port is anticipated by *"checks the address field of the message"* disclosed in column 11, line 5-20

Regarding claim **19**, wherein first set of input ports in said set of input port is coupled to a first ring in said set of rings and second set of input ports in said set of

input ports is coupled to a second data ring in set of data rings is anticipated by " *input ports coupled to ring 390 and 370"* disclosed in Fig-3.

Regarding claim **20**, where in sink port in said set of sink ports is anticipated by *"Output Ports A, B, C, D, E & F"* disclosed in column 6, lines11-15; includes:

A ring interface coupled to said set of data rings to receive data from said data packets is anticipated by *"connection between input port A and two rings"* disclosed in Fig-3;

A storage buffer coupled to said ring interface to receive and store data is anticipated by *"storing at PIO message for a time period in a register"* disclosed in column 11, lines 45-47; and

An output port coupled to said storage buffer to receive said data from the storage buffer and transmit the data on a communication link is anticipated by *"data is forwarded to the port register A"* as disclosed in column 11, line 65-67.

Regarding claim **21**, wherein an input port includes:

A communication interface to receive data packets from a communication link is anticipated by *"Input Port A receiving data from node 30"* as disclosed in Fig 3.

A storage buffer coupled to said communication link to store data from said data packets is anticipated by *"Register RA (36) is coupled to node 30"* as disclosed in Fig 3, said storage buffer coupled to at least one data ring in said set of data rings is anticipated by "*Register RA (36) is coupled to ring 370 and 390"* as disclosed in Fig 2.

Regarding claim **22**, a cross-bar switch is anticipated by *"cross-bar switch"* disclosed in column 5, line 22; comprising

A set of input ports to receive data packets from a communication link is anticipated by "*input port A (301)*" disclosed in Fig 3 or column 6, line 11; and

A set of sink ports coupled to said set of input ports to receive said data packets from the said set of input ports is anticipated by *"output port A (302)*" disclosed in Fig-3 or column 6, line 13; and

A set of data rings coupling each sink port in said set of sink ports to each input ports in said set of input ports is anticipated by *"data rings 370 and 390"* disclosed in Fig-3 or column 6, lines 20-24.

Wherein sink port in said set of sink ports snoops data packet on each data ring in said set of data rings is anticipated by *"each register is coupled to get message from the response ring"* disclosed in column 8, lines 44-46.

Regarding claim **23**, wherein first set of input ports in said set of input port is coupled to a first ring in said set of rings and second set of input ports in said set of input ports is coupled to a second data ring in set of data rings is anticipated by " *input ports coupled to ring 390 and 370"* disclosed in Fig-3

Regarding claim **24**, where in sink port in said set of sink ports is anticipated by "*Output Ports A, B, C, D, E & F*" disclosed in column 6, lines11-15; includes:

A ring interface coupled to said set of data rings to receive data from said data packets is anticipated by *"connection between input port A and two rings*" disclosed in Fig-3;

A storage buffer coupled to said ring interface to receive and store data is anticipated by *"storing at PIO message for a time period"* disclosed in column 11, lines 45-47; and

An output port coupled to said storage buffer to receive said data from the storage buffer and transmit the data on a communication link is anticipated by *"data is forwarded to the port register A"* as disclosed in column 11, line 65-67.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim **4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al (US 6,658,016). Dai et al (US 6,658,016). Teaches all the limitation of claim 4 (see 102 rejection for claim 1 above) except Dai et al (US 6,658,016) does not discloses set of three data rings. However Dai et al. (US 6,658,016) teaches data transfer capacity depends upon the bandwidth capacity of the bus of CPU (see column 7, lines 20-30). At the time of invention was made, it would have been obvious to a person in ordinary skill in art to add additional data rings to the packet switching fabric of Dai et al. (US 6,658,016). One in ordinary skill would be motivated to do so to provide additional bandwidth or redundant rings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
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lk

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